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Mr. MCMAHON, from the Joint Committee on Atomic Energy, submitted the following

REPORT

[Pursuant to Public Law 585, 79th Cong.]

REPORT OF THE JOINT COMMITTEE ON ATOMIC ENERGY TO THE CONGRESS OF THE UNITED STATES

The Joint Committee on Atomic Energy was created five years ago to represent Congress and the American people in overseeing this nation's atomic enterprise. By law the Committee is required to "make continuing studies of the activities of the Atomic Energy Commission and of problems relating to the development, use, and control of atomic energy." The Commission, in turn, is required to keep the Committee "fully and currently informed." The law further stipulates that "the members of the Joint Committee who are Members of the Senate shall from time to time report to the Senate, and the members of the Joint Committee who are Members of the House of Representatives shall from time to time report to the House, by bill or otherwise, their recommendations. * * *" In the discharge of this statutory duty the Committee submits to Congress the present document. All statements have been meticulously screened so as to include unclassified and publishable information only.

COMMITTEE ACTIVITIES

The Committee and its authorized subcommittees have held hundreds of meetings. About three quarters of these took place in executive session, in keeping with necessary secrecy requirements. The Committee has heard the testimony of virtually all the ranking government officials, scientists, and military men in any way connected with atomic energy. At least once annually members of the Committee or staff representatives inspect each significant field installation, of which there are dozens; and visits to such major installa-

tions as Hanford, Oak Ridge, Los Alamos, Savannah River, and Paducah occur routinely at more frequent intervals.

Apart from the Top Secret Progress Reports which the Atomic Energy Commission regularly transmits, the Committee receives and itself originates many classified papers covering all phases of the project. It keeps in close touch with the Commission and the Defense Department, and the Committee is aware of major policy issues as they develop. Every effort is made, through a 24-hour armed guard over the Committee offices and through appropriate use of vaults, safes, sound-proofing, electronic devices, exclusion areas, FBI investigations of staff personnel, and the like, to maintain standards of security vigilance at least as high as those maintained within the executive branch.

The Committee has conscientiously sought to meet its responsibilities and to approach the non-partisan problems of atomic energy in a non-partisan spirit.

LEGISLATION

Among the unusual aspects of the Joint Committee and its work is the fact that, thus far, it has found only one major amendment to the original organic law to be necessary. This amendment was reported unanimously to the Congress and was approved by the Senate and House without dissent during the present month. It deals with certain limited atomic energy matters concerning friendly foreign countries. While the Committee has also recommended to Congress six minor items of legislation over the past half decade, its activities have mainly consisted in a constant scrutiny of the unfolding atomic enterprise. Since secrecy requirements hinder open Congressional debate and public opinion from operating to prevent possible abuses and weaknesses within the atomic program, the Committee has felt profoundly obligated to substitute for these normal correctives to the utmost of its ability, through continuous inquiry, fact-finding, investigation, and evaluation.

RAW MATERIALS

From its earliest days the Committee has placed heavy emphasis upon raw materials problems. It attempted to encourage the discovery and development of new uranium sources, particularly on the North American continent, but overseas as well. Committee members played an active role in the international arrangements, effective by early 1948, that produced desirable results regarding uranium imports from abroad. Likewise the Committee urged speed not only in the conclusion of raw materials agreements with such countries as South Africa but also in the construction of certain domestic plants which make possible a more efficient use of uranium. Moreover, the Committee itself called attention to one significant source within the United States that was not being adequately exploited.

The Raw Materials Subcommittee, under the Chairmanship of Senator Anderson, is conducting a series of hearings and inquiries which have already demonstrated that the uranium situation has substantially improved and promises to improve still further.

Committee members have emphasized their finding that, within broad limits, the United States may obtain as much uranium as it desires for defense purposes provided that the cost is deemed to be

worth while. Much has been accomplished by way of eliminating the widespread but faulty assumption that uranium ore receipts must be a rigidly fixed quantity, and establishing as fact that supplies will vary with the amount of money, manpower, and effort directed toward obtaining them.

The Committee notes with pleasure the Commission's currently intensified raw materials program and recommends still further intensification of this effort, looking toward increased use of thorium as well as uranium.

PRODUCTION

The past half decade has seen advances and the opening of new possibilities in techniques of producing fissionable and fusionable materials. The over-all picture, which once involved the danger of major set-backs, has brightened—although the future of course contains uncertainties. The Commission has raised production levels to an all-time high. The Committee has done its best both to stimulate more effective operation of existing facilities and to encourage fresh lines of technological progress.

In several instances the Committee saw opportunities to step up plutonium production, rapidly and at minimum cost, and it exerted continuous pressure resulting in seizure of these opportunities. Another problem which has occupied considerable Committee time is the ratio between plutonium and U–235 output; for a healthy balance between the two is essential to national security.

Still another problem at the forefront in Committee deliberations is that of AEC relations with contractors, especially two aspects: (1) The desirability of awarding contracts to as many large and small private firms as feasible, rather than concentrating the work among a few big companies; and (2) the desirability of awarding as many contracts as feasible through competitive bidding and on a lump-sum or unit-price basis, rather than through negotiation and on the basis of cost-plus-fixed-fee. More progress has been made in the first of these two aspects than in the second. In its last general report to the Congress, two years ago, the Committee said the following:

> Only a lump-sum, unit-price, or similar-type contract, offering maximum opportunities for profit, creates highest incentive to keep down costs. This system has been applied successfully in the case of certain feed material processes; but whether it might work at Oak Ridge, Hanford, and Los Alamos is a difficult question which the Commission must face at some time in the future.

Greater effort is recommended toward extending the use of lump-sum or unit-price contracts.

However, where cost-plus-fixed-fee contracts today prevail, the Committee is glad to observe an increase in cost consciousness and fiscal controls without impairing rapid progress. One facility, for example, was recently completed three months ahead of schedule and at a cost nearly three million dollars less than anticipated. However, throughout the project, in varying degrees, there remains room for improvement.

Work stoppages in atomic energy construction jobs have periodically caused concern among Committee members, but never to the same degree as the recent stoppages at Paducah, Kentucky, and Dana, Indiana. These two installations are of critical importance to the defense of the United States and must not be delayed.

The Committee earnestly hopes and recommends that all parties concerned in the disputes at Paducah and Dana find ways to adjust their differences without resorting to tactics which hurt the security of our country.

REACTOR DEVELOPMENT

In its 1949 report, the Committee said it—

> believes that reactor development should proceed with all possible speed, and disappointment therefore follows from reflection that, in 2½ years, the Commission has not broken ground on a single new-type high-power reactor.

The Committee added this comment:

> Results are what count; and by that standard the rate of progress in reactor development for military purposes is overslow, notwithstanding the many good reasons which account for it. The Committee urges every possible effort in this field.

Since these words were written, genuine gains have been made. Reactor production capacity at Hanford has increased; the research reactor at Brookhaven, after many vicissitudes and avoidable delays, started operating; the reactors planned for Savannah River are under way; the important Materials Testing Reactor and a land-based prototype of a submarine reactor are well along toward realization at Arco, Idaho; and the Experimental Breeder Reactor, also located at Arco, "went critical" a few weeks ago.

This last event represents a kind of landmark, since—before start-up of the Experimental Breeder—the reactor of most advanced design and performance operating in North America was the Canadian NRX heavy-water pile at Chalk River, Ontario. The Committee hopes that never again will it be truthfully said that the reactor of most advanced design and performance operates anywhere but in the United States.

The Reactor Development Subcommittee, under the chairmanship of the Committee Vice-Chairman, Representative Durham, has long been active and has vigorously sought to communicate its sense of urgency to the technical people working in this field. Its work has helped concentrate the reactor program upon specific priority objectives, reducing the earlier tendency to study much but to undertake little which is concrete. As regards one vital reactor project, the Subcommittee concluded that a major policy decision had been too long delayed and that additional delay might seriously hamper progress. The Subcommittee therefore informed the appropriate civilian and military authorities that, unless the necessary decision were reached within a specific time period, they would be requested to appear and explain their reasons for deferring judgment. The decision (one which the Subcommittee itself endorsed) was made on the next-to-last day of the stipulated time period.

Contracts have been let for the development and prototype construction of a nuclear power plant and fuselage for an aircraft. The Reactor Development Subcommittee has long advocated such positive steps and now expects firm strides toward useful nuclear-powered flight.

The Subcommittee has been most pleased with the drive and the business-like methods brought to bear upon the submarine prototype reactor now under construction at Arco. The prospect of peacetime industrial power improves, moreover, as allied work upon military

reactors such as that for the submarine progresses. The Subcommittee has been least pleased with progress at Schenectady, New York. The 1949 Committee report pointed out that after three years this laboratory had yet to start building a reactor. The same remains true today, two years later.

The Committee is keenly interested in the current study program involving eight private industrial firms. These are exploring the possibility of offering to build reactors wholly or partly at their own expense, with the dual purpose of producing power for sale to the public and plutonium for sale to the government. It is recommended that the complex factors entering into such a possibility be brought rapidly to a point of crystallization, so that they may be properly evaluated and judged.

The Committee also renews its 1949 recommendation, particularly as regards thorium breeders and plutonium production reactors of the future, that "reactor development * * * proceed with all possible speed."

WEAPONS

Before the President announced, on January 31, 1950, his decision to accelerate the nation's hydrogen weapon program, and at a time when some individuals having access to the facts opposed such a decision, the Committee thoroughly explored the problem—through numerous meetings with experts and through subcommittee hearings at Los Alamos and elsewhere—and Committee members urged, in strongest terms, the most strenuous efforts in this area. Since that time the hydrogen program has gone forward, and the Committee renews its urgings that no stone be left unturned to attain necessary objectives in the shortest space of time.

The Committee specifically suggests that early consideration be given to the possibility of a second weapons development laboratory to supplement Los Alamos at least in certain engineering phases.

As this suggestion indicates, concern is felt over the increasing burdens imposed upon Los Alamos. That laboratory is to be congratulated upon the results of the tests conducted last winter at the Nevada site and more recently at Eniwetok Atoll in the Pacific. These very results, achieved by Los Alamos, create incentive to pursue so many lines of endeavor simultaneously as to create difficult problems for any single laboratory. The Committee also has in mind the continuing necessity of an imaginative approach and a willingness to assume risks, including the risk of test failures, if the stakes appear to be sufficiently high.

If any one area of atomic endeavor were to be singled out as having yielded the most far-reaching progress over the past two years, it is the area of weapons development. The implications for tactical uses are great. The strategical implications are equally great. The ability of the United States to deter aggression, or to meet aggression if it comes, is being significantly strengthened.

SECURITY AND INTELLIGENCE

In the first months of its existence the Committee took two steps (1) it pressed for a strong United States intelligence effort directed at the atomic energy activities of potential enemies; and (2) it brought unrelenting pressure in behalf of all endeavors to secure information

which would enable the United States to know when any atomic test explosion took place on the continents of Eurasia. The intensity of the Committee's interest as to both phases has continued at peak level throughout. The active intervention of a handful of individuals, some of whom are Committee members, may well have meant the difference between failure and success in becoming aware of the two Soviet bomb tests announced by the President. Had these two tests passed unnoticed in the United States, the consequences to ourselves could have verged upon the disastrous.

The Committee's 1949 report observes that the first Soviet explosion took place considerably ahead of the anticipated date. Although the important steps continually under way to bolster this Nation's atomic energy intelligence program are to be commended, it is felt that in this field almost no effort can be too great.

The Committee's solemn responsibility to help assure the security of atomic weapon storage has figured in a number of hearings and detailed on-the-spot checks. Some time ago the Committee found that the handling of this problem was capable of being strengthened. Remedial measures have since been adopted. Another physical security problem of continuing concern relates to the danger of clandestine introduction of atomic weapons into American port cities through innocent-appearing merchant ships.

As regards personnel security in atomic energy enterprises there is not now and can never be any basis for complacency. To be sure, no discovered cases of atomic espionage have involved Commission employees. But the machinery which can furnish absolute protection against treason is yet to be invented. This very fact underscores the necessity for the most unflagging and aggressive efforts to guard the integrity of the nation's project.

AEC ADMINISTRATION

The Commission, in its organization and administrative functioning, and its philosophy of operation, is constantly improving.

DELIVERABILITY

Another matter long prominent in the Committee's activities is deliverability, that is, the problem of transporting atomic weapons to the proper targets with maximum certainty and accuracy. Military secrecy forbids comment, except to say that the Committee has done its best and will continue to do its best to help guarantee that, in case of need, the atomic stockpile will be delivered with optimum efficiency.

OTHER PROBLEMS

The Committee's views on AEC community problems were set forth in the 1949 report, and they have not altered since.

The civil defense inquiries and hearings undertaken by the Committee just after the first Soviet atomic explosion contributed to the speeding of the program which has evolved, and the Committee maintains its interest.

It also follows developments, through hearings and otherwise, in the as yet fruitless quest for effective international control of atomic energy.

Committee interest in peacetime applications continues to be high, not only as regards such well publicized areas as radioactive isotopes and commercial power, but also in fields of incalculable potential promise such as photosynthesis research.

THE PROBLEM OF ADEQUACY

Throughout the history of the Committee no question has arisen more often nor been debated more earnestly than that of adequacy—the scope and scale of the atomic energy effort needed to defend the United States. Committee files are filled with correspondence, studies, and transcripts of testimony bearing upon this fundamental issue.

The Committee looks forward to the day when national security may permit the full story of its work upon the adequacy problem to be told. Suffice it to state that the vital plants today rising at Savannah River and Paducah are directly related to this work.

CONCLUSION

It should be emphasized that a number of important topics have necessarily been omitted in the foregoing comments. The atomic enterprise is still so novel and unprecedented that standards of judgment and evaluation are by no means easy to establish. The Commission, after almost five years of operation, is making progress at a faster rate than in its earlier days. It is also unquestionably true that the atomic counter-blow which the United States could launch at an aggressor would be swift and sure and terrible. On the other hand, as this report indicates, there are areas in our atomic program which need to be shored up, and there are opportunities for faster advancement which need to be vigorously exploited. If the Committee has a single general comment to offer, it is this: Greater boldness and more scientific and technical daring should be brought to bear upon the program.

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